



SDMS DocID

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry



Date

ROUTING AND TRANSMITTAL SLIP

1/18/07

TO: (Name, office symbol, building, room number)	MAIL STOP	INITIALS	DATE
1. OSC Laura Casillas, EPA R3			
2. Dr Khazari Wasti, VA DOH			
3. Pat Mc Murray, VA D&R			
4. Dr Venita Newby-Owens, Virginia Beach Health District			
5.			

<input type="checkbox"/> Action	<input type="checkbox"/> Coordination	<input type="checkbox"/> Investigate	<input type="checkbox"/> See Me
<input type="checkbox"/> Approval	<input type="checkbox"/> File	<input type="checkbox"/> Justify	<input type="checkbox"/> Signature
<input type="checkbox"/> As Requested	<input type="checkbox"/> For Clearance	<input type="checkbox"/> Note and Return	
<input type="checkbox"/> Circulate	<input type="checkbox"/> For Correction	<input type="checkbox"/> Per Conversation	
<input type="checkbox"/> Comment	<input checked="" type="checkbox"/> For Your Information	<input type="checkbox"/> Prepare Reply	

REMARKS:

For your information, here is ATSDR's review of environmental health data for the Oceana Salvage site in Virginia Beach, at the request of EPA. Thank you.

FROM: (Name, office symbol)

Lora Werner

Bldg./Room No.

Phone No.

258-4318/1

Mail Stop

CDC 0.41B 03-92

Federal Recycling Program

ATSDR ROUTING AND TRANSMITTAL SLIP
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AR300009

ATSDR Record of Activity

UID #: rlw0 Date: 01 / 09 / 2007 Time: 10:00 am x pm

Site Name: Oceana Salvage City: Virginia Cnty: Unknown State: VA

CERCLIS #: VAN000306180 Cost Recovery #: 3AEH Region: III

Site Status (1) ☐ NPL ☐ Non-NPL ☐ RCRA ☐ Non-Site specific ☐ Federal
 (2) ☐ Emergency Response ☐ Remedial ☐ Other

Activities

☐ Incoming Call ☐ Public Meeting ☐ Health Consult ☐ Site Visit
☐ Outgoing Call ☐ Other Meeting ☐ Health Referral ☐ Info Provided
☐ Conference Call ☐ Data Review ☒ Written Response ☐ Training
☐ Incoming Mail ☐ Other

Requestor: (1) Laura Casillas

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Contacts and Affiliation

(31) Lora Werner ()
 () ()

1-EPA	2-USCG	3-OTHER FED	4-STATE ENV	5-STATE HLT
6-COUNTY HLTH	7-CITY HLTH	8-HOSPITAL	9-LAW ENFORCE	10-FIRE DEPT
11-POISON CTR	12-PRIV CITZ	13-OTHER	14-UNKNOWN	15-DOD
16-DOE	17-NOAA	18-OTHR STATE	19-OTHR COUNTY	20-OTHR CITY
21-INTL	22-CITZ GROUP	23-ELECT. OFF	24-PRIV. CO	25-NEWS MEDIA
26-ARMY	27-NAVY	28-AIR FORCE	29-DEF LOG AGCY	30-NRC
31-ATSDR				

Program Areas

☐ Health Assessment ☐ Health Studies ☐ Tox Info-profile ☐ Worker Hlth
☐ Petition Assessment ☐ Health Surveillnc ☐ Tox Info-Nonprofil ☐ Admin
☐ Emergency Response ☐ Disease Registry ☐ Subst-Spec Resch ☐ Other
☐ Health Consultation ☐ Exposr Registry ☐ Health Education

BACKGROUND AND STATEMENT OF ISSUES: US Environmental Protection Agency (EPA) Region III requested the Agency for Toxic Substances and Disease Registry ATSDR) review the results of lead contaminated surface soil samples obtained from an access road that goes to the Oceana Salvage Site, and comment on the health implications associated with human exposure.

The Oceana Salvage Site is located in Virginia Beach, Virginia, and has operated at its current location for about 45 years. The site is bordered to the north and west by Oceana Naval Air Station (NAS), to the east by Holiday Trav-L-Park, and to the south by undeveloped land. A fence is installed along the property

Exposure to lead may cause serious adverse health effects, particularly in young children. Young children and fetuses are especially sensitive to the toxic effects of lead exposures. Factors influencing this susceptibility include (1) immaturity of the blood brain barrier which allows entrance of contaminants into the developing central nervous system; (2) hand-to-mouth activity and pica (ingestion of at least one gram of soil) behavior which leads to consumption of contaminated media; (3) nutritional status of the child; (4) low body weight; (5) passive diffusion of contaminants across the placenta to the developing fetus. Because of these factors, children are more at risk of developing adverse health effects than adolescents and adults from lead exposure.

Blood lead levels at 10 micrograms/deciliter ($\mu\text{g}/\text{dl}$) or greater have been linked to adverse developmental effects in fetuses, hearing impairment, stunting of growth, and reductions in intelligence quotients in children [4]. Blood lead levels are increased on average about 5 $\mu\text{g}/\text{dl}$ for every 1,000 ppm of lead in soil or dust, and may increase 3 to 5 times higher than the mean response depending on play habits and mouthing behavior [5,6].

A lead study conducted to investigate the seasonal changes in blood lead levels in children indicates that some of the seasonal variation in blood lead levels in children is probably due to increased exposure to lead in dust and soil. Moreover, the study showed that the outdoor activity patterns indicate that children are likely to contact high lead levels from street dust, or soil during longer outdoor play periods in the summer [4].

US EPA use 400 ppm and 1,000 ppm as screening tools for lead for residential and industrial soils, respectively. No minimal risk level has been developed for lead, because the threshold for its most sensitive effects (i.e., neurotoxicity) has not yet been defined. Furthermore, US EPA has not developed a Reference Dose for lead [4].

At the Oceana Salvage Site, lead was detected at 18 ppm, 127 ppm, 31,400 ppm, and at 149,000 ppm in surface soil samples down to 2 to 3 feet below the surface. Specifically, along the access road at the Oceana Salvage Site lead was detected at a maximum level of 31,400 ppm. An absorbed dose of lead at 0.05 mg/kg/d for 5 days per week for 200 days has been shown to cause adverse neurological effects in monkeys. In characterizing the access road at this site, ATSDR assumed that 2 days/week for 3 months a child weighing 15 kg ingests 200 mg of soil/day that contains an average level of lead at 15,000 ppm. With these assumptions, the estimated exposure dose of lead would be approximately 0.05 mg/kg/d.

CONCLUSIONS

Lead levels in surface soil along the access road that goes to the Oceana Salvage Site may be highly variable. The results of these surface soil samples revealed lead at levels that exceed US EPA's lead screening level for industrial sites of 1,000 ppm. Furthermore, inhalation and inadvertent oral exposures of lead contaminated soils and dusts may increase blood lead levels in people who regularly traverse the access road and go on-site. Therefore, the battery casings containing lead along the access road which goes to the Oceana Salvage Site poses a potential health hazard to children and adults who regularly

REFERENCES

1. Technical Memorandum Summary of Direct-Push Soil Survey, Oceana Salvage Access Road, Virginia Beach, VA, prepared by Laura Cook/CH2M HILL, February 1, 2005.
2. Region-Specific Alterations in Dopamine and Serotonin Metabolism in Brains of Rats Exposed to Low Levels of Lead, Subbarao V. Kala and Arun L. Jadhav, ' Neurotoxicology 16 (2): 297-308, 1995.
3. Toxicological Profile for Lead, ATSDR, 1999.
4. Abstract: Seasonal Influences on Childhood Lead Exposure, Lih-Ming, George G Rhoads, Paul J. Liroy, Environmental Health Perspectives Volume 108, Number 2, February 2000.
5. Standards for soil lead limitations in the United States, Chaney, R.L. and Mielke, H.W., Trace Substances in Environmental Health 20:355-377, 1986.
6. Establishing a health based standard for lead in residential soils, Reagan, P.L. and Silbergeld, E.K., Trace Substances in Environmental Health 23:119-238, 1990.